REMARKS

The application is believed to be in condition for allowance.

Claims 3-4 were canceled in a previous amendment. New claims 11-14 have been added.

There are no formal matters outstanding.

The Official Office Action rejected all claims under U.S.C. §102 and §103.

The Official Action rejected claims 1, 2, 5, 6, 8, and 9 under 35 U.S.C. §102(b) as anticipated by NISHIKAWA (JP 2001-053211).

The Official Action rejected claims 1-2 and 5-10 under U.S.C. §103(a) as obvious over NISHIKAWA (JP 2001-053211) in view of SUGIHARA (U.S. Patent 6,392,293).

The Official Action rejected claims 1, 2 and 5-10 under §102(b) as anticipated by or, in the alternative, under U.S.C. §103(a) as obvious over OKUDAIRA (JP 2002-141456).

The Official Action rejected claims 1, 2, and 5-10 under 35 U.S.C. §103(a) as being obvious over SHIMOKAWA (U.S. Patent Application 2002/0019077).

Foreign Language References

Attention is directed to MPEP 706.02 II which deals with reliance upon abstracts and foreign language documents in support of a rejection.

Note that MPEP 706.02 II requires the Examiner to obtain a translation of "non-English reference" so that the record is clear as to the precise facts the examiner is relying upon in support of the rejection." In view of this requirement, the current rejections are not proper and should be withdrawn.

Applicant notes that each of the §102(b) anticipation references, NISHIKAWA and OKUDAIRA, are being offered for disclosing semiconductor devices having a lead material with a Sn-Bi alloy plating layer on the lead material containing 3-5% Bi and having a thickness of either about 10 microns or 10 microns. But without a translation, this statement is not supported.

The Official Action states that both these Japanese language patents characterize the thickness of the alloy layer as "about" 10 microns.

However, applicant notes that a machine translation of the OKUDAIRA patent available through the Japanese Patent Office web site does not contain the modifier "about" or other qualifying language regarding the thickness of the alloy plating. Applicant further notes that the JPO machine

translation of the NISHIKAWA patent does include the modifier "about" when referencing the thickness of the alloy layer. Thus, it seems that the Official Action does not have a full understanding of these references and that a translation is necessary to understand what is actually disclosed.

Anticipation:

See claim 1 which recites:

"the metal thin film being made of an alloy of tin and bismuth and the bismuth being contained in the alloy so as to satisfy any one of the following conditional expressions;

(a) $20 \leq Xm \leq 25$ and $0.5 \leq Cam \leq 4.5$,

(b) $15 \leq Xm \leq 20$ and $0.7 \leq Cam \leq 4.5$,

(c) $10 < Xm \leq 15$ and $4.5 \leq Cam \leq 6.0$,

wherein Xm indicating the thickness (MIC) of the metal thin film and Cam indicating wt % of the bismuth in the metal thin film."

Thus, a Sn-Bi alloy plating layer of 10 microns does not anticipate.

Even if the references teach "about 10 microns", the NISHIKAWA, OKUDAIRA, and SHIMOKAWA references do not anticipate the claims because prior art that merely meets or touches a claimed range, but does not disclose sufficiently specific embodiments within the range, does not give rise to categorical anticipation, because relevant case law has not

found anticipation in analogous situations, and because the prior art is not sufficiently specific for anticipation purposes.

Again, even if "about" 10 microns is disclosed, this is not a disclosure of any specific example of plating greater than 10 microns and is thus not a disclosure of any specific example that could fall *within* the claimed range of <10 - ≤25 microns. If the references are translated or interpreted to include the modifier "about," the disclosures can only be an unspecific range with no specific examples falling within the claimed range.

A disclosure of 10 microns for the thickness of the alloy plating, without the term "about" or any other modifier, is also not a disclosure of a specific example of plating thickness falling *within* the claimed range. Such a disclosure, if the references are so translated or interpreted, could only be a specific example of plating thickness that at best *touches* the claimed range.

Section 2131.03 paragraph I of the MPEP cites Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985), for the proposition that specific examples in the prior art which are within a claimed range anticipate the range. In the Titaniam Metals case, claims to titanium alloy with 0.6-0.9% nickel (Ni) and 0.2-0.4% molybdenum (Mo) were held anticipated by a graph in a Russian article on Ti-

Mo-Ni alloys because the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions.

Applicant's claimed ranges and their relation to the prior art can be distinguished from the situation in Titanium Metals such that the prior art does not categorically anticipate applicant's claimed ranges under MPEP 2131.03 paragraph I.

As noted above, NISHIKAWA, OKUDAIRA and SHIMOKAWA do not contain specific examples of Sn-Bi alloy plating with thicknesses that fall within the claimed range. The most that can be said of these references is that they disclose a specific example touching the limit of the claimed range or that they disclose an insufficiently specific range of thickness that do not include any sufficiently specific examples falling within the claimed range.

The applied references do not establish categorical anticipation of applicant's claim analogous to Titanium Metals or a categorical anticipation covered by MPEP 2131.03 paragraph I.

Relevant case law from the Federal Circuit and its predecessor, the Court of Customs and Patent Appeals, has not found anticipation where the prior art discloses a range that touches the claimed range but does not disclose specific

examples within the claimed range. In Application of Malagari the applicant claimed a range of carbon in a steal alloy of between 0.03 and 0.07%. 499 F.2d 1297, 182 U.S.P.Q. 549 (C.C.P.A. 1974). The prior art disclosed a range of carbon of 0.02 to 0.03%, which touched but did not overlap with the lower end of the claimed range. The Court expressly declined to hold that the touching ranges constituted anticipation of the claimed range and noted that prior case law could not be properly interpreted to so hold. In In re Geisler the Federal Circuit considered a similar situation - a claimed thickness range of 50 to 100 angstroms for a textile coating and a prior art disclosure suggesting at least 100 angstroms for the same type of coating. The court assessed the case in terms of obviousness, not anticipation.

The MPEP section 2131.04 II states, "When the prior art discloses a range which touches, overlaps, or is within the claimed range, but no specific examples falling *within* the claimed range are disclosed, a case by case determination must be made as to anticipation." (emphasis added). This statement makes a distinction among ranges in the prior art that touch, overlap, and fall within a claimed range and states that, for anticipation to be clear and unambiguous such that no case by case determination is necessary, the prior art must disclose a specific example that is *within* the claimed range.

Paragraph II of MPEP section 2131.03 goes on to state: "In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with 'sufficient specificity to constitute an anticipation of the statute.' What constitutes 'sufficient specificity' is fact dependent."

Thus, the applied references do not disclose the claimed range with sufficient specificity for anticipation. The case law cited above is clear that specific examples falling with the claimed ranges are required for anticipation. Paragraph II of MPEP section 2131.03 is consistent with the case law in its emphasis on sufficient specificity in any anticipation rejection the requirement for specific examples falling within a claimed range for anticipation.

Obviousness:

Paragraph II of section 2131.03 states: "102/103 combination rejection is permitted if it is unclear if the reference teaches the range with 'sufficient specificity'. The examiner must, in this case, provide reasons for anticipation *as well as a motivational statement regarding obviousness.*" MPEP 2131.03 II (emphasis added).

It is respectfully submitted that the prior art discloses no motivation or suggestion to create the specific combinations of thickness and Bi concentrations claimed.

Without such a suggestion or motivation the prior art cannot render obvious applicant's claims.

To the extent a *prima facie* case of obviousness may arise, such *prima facie* case is rebutted by the unexpected results of the claimed combinations of thickness and Bi concentration.

Applicant demonstrates in the specification how the claimed ranges produce the desired characteristics only within a narrow range of combinations of thickness and Bi concentration. Applicant claims specific combinations to achieve unexpected crack resistant and whisker resistant properties.

These results are unexpected because the prior art encompasses a very large number of possible distinct combinations of Bi concentration and plating thickness. This broad range of combinations found in the prior art is not overlapping with the ranges of combinations claimed. The claimed combinations and the prior art combinations merely touch or meet at the extreme of the claimed range.

More important, as evidence of unexpected results and criticality is the fact that the claimed range of combinations is not only within a set of combinations distinct from the prior art, but is also only a portion of combinations within this set of previously undisclosed combinations. By varying both thickness and Bi content, applicant has claimed a

narrow, critical range of combinations within a broader range of combinations not disclosed in the prior art. Figures 6, 7, and 8 of the specification show the criticality of the claimed combinations for achieving the desired crack and whisker resistant properties while still retaining good wetability. Relative to the prior art ranges of thickness and Bi content combinations, the claimed range resulted in unexpected results.

The claimed combinations of Bi content and plating thickness are not merely optimizations within combinations disclosed by the prior art. As noted above, the claimed combinations are subsets of combinations not disclosed in the prior art. The prior art does not disclose the combinations established by the ranges .5-6% Bi and 10-25 micron thickness and does not disclose the critical subset of these combinations covered by applicant's claims.

Accordingly, reconsideration and allowance of all the original claims are respectfully requested.

Further, new claims have been presented.

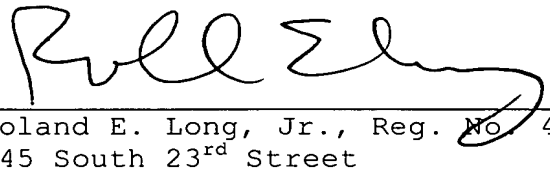
These claims 11-14 recite the expressions (a) and (b) of claim 1 and expressions (b) and (c) of claim 2. The applied art is not seen to teach or suggest a metal thin film with these characteristics. Thus, these new claims are also believed to be patentable.

Applicant believes the present application is in condition for allowance and an early indication of the same is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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